



Linda S. Adams
Secretary for
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Department of Toxic Substances Control

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Arnold Schwarzenegger
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January 4, 2007

Ms. Paula Bolio
CH2MHILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

LENNAR MARE ISLAND, DRAFT REMOVAL ACTION WORK PLAN FOR IR 21,
INVESTIGATION AREA C2, MAY 2006

Dear Ms. Bolio:

This transmits comments by the Department on the subject document. Please contact us at your convenience to resolve any issues you have and discuss in more detail incorporating the IR 21 Work Plan in the Draft Remedial Action Plan for Investigation Area C2. Comments concerning the ecological risk evaluation are pending and will be forwarded to you as soon as we receive them.

If you have any questions or wish to arrange a meeting, you can contact me at (916)255-3738 or by email to bkilgore@dtsc.ca.gov.

Sincerely,

William Kilgore
Senior Hazardous Substances Engineer
Office of Military Facilities

Enclosure

cc: Mr. Brian Thompson
Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, California 94612

Ms. Paula Bolio
January 4, 2007
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Ms. Carolyn d' Almeida
U.S. Environmental Protection Agency (SFD-8-1)
75 Hawthorne Street
San Francisco, California 94105-3901

Mr. Neal Siler
Lennar Mare Island
690 Walnut Avenue, Suite 100
Vallejo, Mare Island, California 94592

Mr. Henry Chui, P.E.
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, California 94710

DTSC comments
Draft Removal Action Work Plan for IR 21, Investigation Area C2,
dated May 2006.

1. Executive Summary, page iii. The cancer risks and hazard indices need to be included in the discussion of the health risks for the site. Also include proposed cleanup levels, and proposed remedies.
2. Executive Summary, page iv. Include descriptions of the locations within IR 21 where the risk based levels are exceeded.
3. Section 1.3.1, USTs and FOPL Segments Program. Include the regulatory status for the segments discussed in this section.
4. Section 1.3.2, PCB Program. Are the PCB sites shown on a figure in this Remedial Action Work Plan (RAWP)? If not, they should be included.
5. Section 2.0, Site Characterization. The location of storm sewer catch basins in relation to buildings 382, 386, 388, 390 needs to be presented. The results of any storm sewer or storm sewer catch basin sampling, especially for PCBs, needs also to be presented.
6. Section 2.1, Site Description. The site that is the subject of this RAWP should include all of Building 382. As with all sites, the functional area of coverage includes the extent of any impacts whose sources are associated directly with activities on the site. Therefore, it is appropriate to discuss the activities that occurred in building 382 and the plates and shapes yard. Activities that occurred in the yard included abrasive blast activities, cleanup of abrasive blast material, and radionuclide material storage. Other activities from which a release may have occurred need to be discussed here.
7. Section 2.3.10, 2006 Test Pits East of Building 386. According to the information presented in Figures 2.5-2 and 2.5-3, levels of TPH Diesel and Motor Oil were, essentially, not detected in the two borings referenced in this section. It would be helpful to provide more information concerning the reason for selecting the referenced locations for trenching versus others in IR 21 with much higher levels of TPH. It is appropriate to provide the information on the conditions found, data collected, and any conclusions reached as a result of the test pit investigation. Based on the boring locations noted in the text the test pits would be on the west side of the building. Please clarify where the test pits were located and for which borings they are associated.
8. Section 2.5, Nature and Extent of Contamination. A discussion, supported by investigation data if available, should be included here to explain why more extensive sub-floor borings and related sampling appear not to have been conducted for the northern 1/2 of buildings 388 and 390 and the southern 2/3rds of building 382. The extent of soil and grab ground water sampling in the northern 2/3rds of buildings 388 and 390 and, it appears, the southern 2/3rds of building 382 is minimal compared to that

to of building 388. It is our understanding that data from investigations associated with wood block and concrete flooring installation, and equipment foundations was collected. Please discuss and justify why this is appropriate. From the information provided in the Site Identification Technical Memorandum, it appears that since construction of the buildings in about 1920, buildings 382, 388, and 390 were used for similar functions. In addition, activities in and near buildings 382 and 390 included metal cleaning, painting and use of oil to coat chain. Sulfuric acid and lye metal cleaning tanks and a 2000 gallon capacity oil/water separator were previously located in the area where building 1388 now stands. In addition, ground water in the area of buildings 382 and 390 has been shown to be impacted by separate phase petroleum compounds.

It is described that overflow from the plasma arc cutting table flowed onto the bare dirt floor. What was the nature of the material that overflowed? It probably was not plasma.

Based on anecdotal information from DTSC staff, previous excavations of pipelines, likely fuel oil, in the north-west sector of the plates and shapes yard showed included excavation of sand blast material associated with the pipeline bedding. Additional sand blast material was observed at intersection of pipelines and was not excavated. The location of the pipeline intersection should be presented on the appropriate figures in the RAWP with a reference in the text concerning the likely presence of the material.

9. Section 2.5.1.3, Metals. The quench tank area is a hot spot and requires remediation. Five sample points within the designated area were found to have concentrations of lead above the often applied lead cleanup level of 750 mg/kg. Analysis of remedial alternatives for lead in this area needs to be included in the C2 Remedial Action Plan. Without additional data defining the extent of lead contamination in this area, it appears that the entire quench tank area needs to be the subject of the remedy. It is appropriate to include this area as part of the remedy for lead in section 3.2, Site-specific Remedial Action Objectives.

10. Section 2.5.2 Groundwater. It appears that characterization data for volatile organic compounds in groundwater are absent from this evaluation. None is evident in Appendix A-Laboratory Data, although section 3.8.2 of this document states, volatile organic compounds (VOCs) were not detected in the groundwater data set used in this HHRA, so the indoor air pathway was not evaluated for this medium." This apparent discrepancy needs to be discussed and the absence of VOC data justified or collected if it has not already. See also comments by the Department's toxicologist.

This section also states that Arochlor 1260 will be further evaluated. What will the evaluation include and what is proposed in order to move forward with incorporating the additional work with the selection of remedies?

11. Section 4.1, Identification of Remedial Action Alternatives. It is appropriate to evaluate the remedial alternatives of excavation, transport, and placement of soil in a landfill and remediation of the site to levels that allow unrestricted use.

12. Section 4.1.2, Alternative 2 – Implementation of a Land-use Covenant. Provide a definition of "Sensitive."

13 Section 4.1.3, Alternative 3 – Containment: Installation of a Compacted Aggregate Base Soil and Low-strength Material Caps and section 4.1.4 Alternative 4 – Installation of a Compacted Aggregate Base Soil Cap and Use of the Steel Grate as a Barrier. This section needs to include a complete description of the alternative including the institutional controls. Provide a complete basis of design of the caps. Will the caps provide an infiltration barrier against water and other fluids? If not, why? Why is the cap material adequate and appropriate considering other material options? What will be the long term operations and maintenance activities? Operations and maintenance includes periodic inspection of the cap and reporting. How will the operations and maintenance provisions be instituted? How will it be assured that the necessary operations and maintenance actions are taken? Include the specific language concerning the restrictions and operations and maintenance of the proposed caps that would be placed in a land use covenant.

14. Section 4.2 Evaluation of Remedial Action Alternatives. Since this site is to be included in a Remedial Action Plan, alternatives that pass the screening criteria need to be analyzed by conducting a detailed analysis of alternatives using the nine criteria. The alternative of remediation to levels that allow unrestricted use also needs to be included in the screening process.

15. Section 4.3 Recommended Remedial Action. The recommended remedial action needs to include a complete and specific description of the remedy, including the specifics of the provisions of any proposed land use covenants and associated tasks and responsibilities for long term O&M tasks. Section 5.0, Land-use Covenants for the IR 21 Area should be combined with this section since the land use cover.ants are part of the remedial action or remedy.

16. Section 5.0, Land-use Covenants for the IR21 Area. See comment 14 above. In this section it is stated, "... a LUC specific to the IR21 Area will prohibit disturbance to the CLSM cap below the steel grate area and below the cap within the southern dirt floor area of Building 386, without the approval of DTSC." It is appropriate that any disturbance of the cap, not just below the cap, in the southern dirt floor area be prohibited without approval by DTSC.

17. Section 6.0, Work Plan. This section should be removed and submitted separately after the RAP for C2 has been finalized.



Linda S. Adams
Secretary for
Environmental Protection



Department of Toxic Substances Control

Maureen F. Gorsen, Director
1011 North Grandview Avenue
Glendale, California 91201



Arnold Schwarzenegger
Governor

MEMORANDUM

TO: Henry Chui
Office of Military Facilities
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, 94710-2721

FROM: Riz A. Sarmiento, Ph.D.
Staff Toxicologist
Human and Ecological Risk Division

DATE: December 20, 2006

SUBJECT: Draft Removal Action Work Plan for the Installation Restoration (IR)21 Area,
Investigation Area C12, Mare Island, Vallejo, California

PCA: 12170

Site: 201383 -11

BACKGROUND

Document Reviewed: At your request, HERD reviewed the above-mentioned document, dated May 2006, that was prepared by CH2M Hill located in Oakland, California.

Scope of Review: This memorandum documents the comments based on the review of the human health risk assessment presented in Appendix C. Comments on the ecological risk assessment will be provided in a separate memorandum.

Background: The purpose of this work plan is to present and evaluate the remedial alternatives that would address the human health concerns due to the contamination present in the IR21 Area. The IR21 Area covers about 6 acres (mostly indoors) and consists of Buildings 386, 388, and 390 and the northwestern portion of Building 382. The chemicals of concern include metals, pesticides, polycyclic aromatic hydrocarbons (PAHs), semi-volatile organic compounds (SVOCs), and VOCs. However, VOCs were detected in soil only, and not in groundwater.

Although the Water Board staff concurred that shallow groundwater in IA C2 does not meet the criteria for drinking water, the Water Board staff could not concur with the conclusion that

shallow groundwater in IA C2 does not have existing or potential beneficial use for industrial service supply, industrial process supply, agricultural supply.

The human health risk assessment (HHRA) used groundwater data from May 1999 through April 2004.

GENERAL COMMENTS

Detection of VOCs in the soil prompted the indoor air evaluation. However, instead of collecting soil gas data to evaluate the indoor air pathway, the soil data were used by applying the Johnson and Ettinger screening and advanced soil models. This presents a concern because HERD's recommended approach is to evaluate potential indoor air exposures by collecting soil gas data.

HERD had previously commented that comparing site concentrations to developed risk-based concentrations (RBCs) is not a recommended approach. However, since this HHRA was prepared before the comment was made, this approach is considered acceptable at this time. Future submittals should not present risk estimates based on a comparison to RBCs.

SPECIFIC COMMENTS

1. Exposure Point Concentrations

While it seems reasonable that the IR boundaries were used to delineate a single exposure area, potential exposures within a building through inhalation should be based on data within the footprint of the building. Please clarify the locations of the data used in the indoor air evaluation.

2. Section C.3.2.3, Potential Exposure to VOCs in Indoor Air, page C-8

Risk-based concentrations (RBCs) were developed using the screening-level version (Tier 1) and Tier 2 of the Johnson and Ettinger (1991) model for soil. As stated in the general comments, HERD's recommended approach is to use soil gas data to evaluate potential indoor air exposures. This report should explain why soil gas data were not collected.

3. Section C.3.4, page C-12

The statement that the assumed exposure of 10 days a year for a utility worker is based on DTSC guidance is incorrect. DTSC has not provided guidelines for evaluating this particular exposure scenario.

4. Section C.5, page C-18

HERD recognizes that the approach of presenting the incremental risk by subtracting the ambient risk from the total risk was previously recommended. More recent evaluations on the validity of this approach, however, indicated that the ambient risk/hazard index can be

subtracted from the total risk/hazard index if the concentrations were derived by similar statistical methods, i.e., UTL vs. UTL or UCL vs. UCL. Otherwise, it is more prudent to just present the site and ambient risks separately.

5. Section C.6.1.2, Selection Process for COPCs, page C-24

HERD is concerned with the methodology of eliminating 3,3'-dichlorobenzidine, benzene, bis(2-chloroethyl)ether, hexachlorobenzene, n-nitroso-di-n-propylamine, and toxaphene as soil COPCs because their detection limits exceeded the risk-based screening levels less than 5 percent of the time. All detected organic chemicals should be identified as COPCs.

DISCUSSION AND CONCLUSIONS

The results of the human health risk assessment indicate that TPH, lead, and PCBs in soil warrant remedial action. The estimated potential cancer risk for the construction worker exposed to surface soil is 1×10^{-6} , and the HI is 2. The primary contributor is Aroclor 1254. The estimated potential cancer risk for the construction worker exposed to mixed-zone soil is 2×10^{-6} , and the HI is below 1 (0.6) whereas the estimated potential cancer risk for the utility worker exposed to surface soil is 1×10^{-6} , and the HI is 0.09.

The estimated potential cancer risk for the utility worker exposed to mixed-zone soil is 2×10^{-6} , and the HI is below 1 (0.03).

The EPC for lead in surface soil (1,390 mg/kg) exceeds the risk-based level for lead for commercial/industrial workers (800 mg/kg); however, the EPC for lead in mixed-zone soil (391 mg/kg) is below the risk-based level for lead. The only three surface soil samples that exceed the risk-based level for lead were collected in the steel-grate area.

The estimated potential cancer risks for a construction worker and utility worker exposed to groundwater through dermal contact are 1×10^{-6} and 3×10^{-5} , respectively. The HIs for these receptors are 2 due primarily to Aroclor 1254.

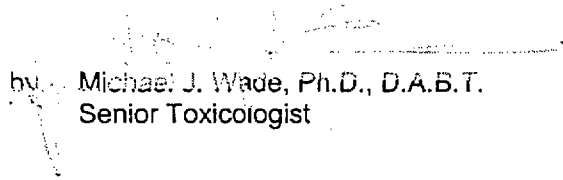
The primary contributor to the total cancer risk and total HI is Aroclor-1254. Aroclor-1254 was detected in one of 13 groundwater samples in January 2000 at a concentration of 0.6 $\mu\text{g/L}$ but was not detected in April 2004 in the sample collected from that well.

The cumulative screening risk due to indoor air exposures to VOCs that enter a structure from the subsurface soil is 2×10^{-5} , but use of the Tier 2 Johnson and Ettinger soil model reduced the cumulative risk to 3×10^{-7} . Since soil gas data is deemed more appropriate for evaluating indoor air exposures, HERD would like an explanation as to why soil gas samples were not collected.

Four remedial alternatives were evaluated and HERD concurs that the selected alternative of installing an aggregate base soil and controlled low-strength material cap will mitigate exposures to soil with elevated concentrations of the chemicals of concern. This removal action

work plan, however, should clarify why no remediation is being proposed for the PCBs in groundwater.

Recommendations made in this memorandum are site-specific and should not be construed as a policy decision applicable to other sites. If you have any questions or concerns, please contact me at (818)551-2983.

Reviewed by:  Michael J. Wade, Ph.D., D.A.B.T.
Senior Toxicologist